**Changing Matter in the Colonial Days**

**Grade Level:** Fifth Grade

**Subject:** Science/Social Studies

**Time: 1 hr 20 min**

**Objectives:**

**Social Studies**

5.H.2

Understand the role of prominent figures in shaping the United States.

5.H.2.1

Summarize the contributions of the “Founding Fathers” to the development of our country.

**Science:**

5.P.2

Understand the interactions of matter and energy and the changes that occur.

5.P.2.3

Summarize properties of original materials, and the new material(s) formed, to demonstrate that a change has occurred.

* **Materials Needed:**
* Pictures of process
* Ash hopper picture
* [Notes on Making \_\_\_\_](http://www.uen.org/Lessonplan/downloadFile.cgi?file=21548-2-27903-Notes_On_Making.pdf&filename=Notes_On_Making.pdf)
* Store soap
* Hand-made soap
* Extension cord
* Heating unit
* Measurement Cup
* Stainless steel pan
* Steel pot
* Wooden spoon
* Soap mold pan
* Rubber gloves
* Safety glasses
* Lye
* Lard
* Cold water
* Digital scale

**Purpose:** The purpose of this lesson is to engage students by having them conduct science experiments that are relevant to the colonial era.

**Procedures:**

**Focus and Review: (5 minutes)**

* Review what the students learned about how colonists.

**Statement: (3 minutes)**

* Today we will be making soap like the colonists. We will be noting the chemical and physical changes that occur to make the soap.

**Teacher Input: (15 minutes)**

* Discuss how colonists found the materials and tools for making soap.
* Show a picture of the “soap making” setup and the ash hopper and have a discussion about their uses.
* Show the container of lye. Discuss why lye was put in the soap. (For disinfecting.)
* Show the box of lard. Discuss why lard was put in the soap. (For cleaning.)
* Show a sample of the real lye soap with today’s soap. Pass them around and have them discuss what they observe as differences between the two students.

**Guided Practice: (15 minutes)**

* Pass out the activity sheet Notes on Making \_\_\_\_\_\_\_\_\_\_. (Have students put Soap on the line.)
* Have the students write the tools needed to make soap. Explain why each is needed and have them write the reasons. a. Heating unit (for heat)  b. Measuring cup (for measuring the ingredients)  c. Stainless steel pan (for making the lye water)  d. Steel pot (for making the soap)  e. Wooden spoon (for stirring the ingredients while it cooks)  f. Soap mold (for shaping the soap)
* Have the students write down the ingredients needed to make soap. Explain why each is needed and have them write the reasons. Weigh out each ingredient and record the weight. a. 1/2 pound lard (for cleaning)  b. 2/5 cup lye (for disinfectant)  c. 1 cold cup water (making lye water)
* Have the students put on their safety glasses.
* **Independent Practice: (35 minutes)**
* As the soap is being made, have the students write the procedure on their activity sheet.
* Put 1/2-pound of lard in the steel pot.
* Put the steel pot on a heating unit on high heat to melt the lard. Ask students, “What type of change is this when the lard melts? Explain.” (Physical—it is just changing form but is not a new product.)
* While it is melting make the lye water. Put the water into the stainless steel pan. Let them feel that the water is cold. Pour the lye into the cold water. Stir it until the lye is dissolved. It will begin to show steam coming from the pan. Ask them, “What type of change is happening in the pan? Explain.” (Chemical—it is giving off heat.)
* When the lard is melted and it’s not too hot, slowly pour in the lye water.
* Stir the mixture constantly over medium-high heat for about twenty minutes until the soap is bubbly and creamy like that of a thin milkshake.
* During the twenty minutes it is cooking, talk about the importance of soap during colonial times. (It kills germs, cleans off dirt, keeps us from smelling bad, makes people look clean, keeps things sanitary, etc.)
* Also during this twenty minutes, have the students list at the bottom of the activity sheet what the colonists used the soap for. (Wash hair, hands, body, dishes, clothes, tools, animals, cabin, etc.)
* When the soap gets to be quite thick and bubbly, pour the soap into the soap mold (bread pan). Get as much out as your can.
* Ask students, “What type of change is this? Explain.” (Chemical—a new product is made.)
* Explain to them that the lye is no longer lye and the lard is no longer lard. They have mixed as a chemical change where a new product is made for cleaning.
* Have the students write down their special observations and thoughts about making soap.
* Have the students write down on the activity sheet what kind of a change it is and explain why.
* The next day take the soap out as a whole piece. Weigh it. Ask them, “Does it weigh the same as the sum of the three ingredients put in?” Have them write their conclusion. (No, but it is close. Some of the water evaporated and not all of the soap was taken out of the pan.)
* Cut the soap into eight squares.

**Closure: (3 minutes)**

* Today we made soap and observed the physical and chemical changes that occur. We also were able to connect to our social studies unit by creating a product used by the colonists.

**Assessment:**

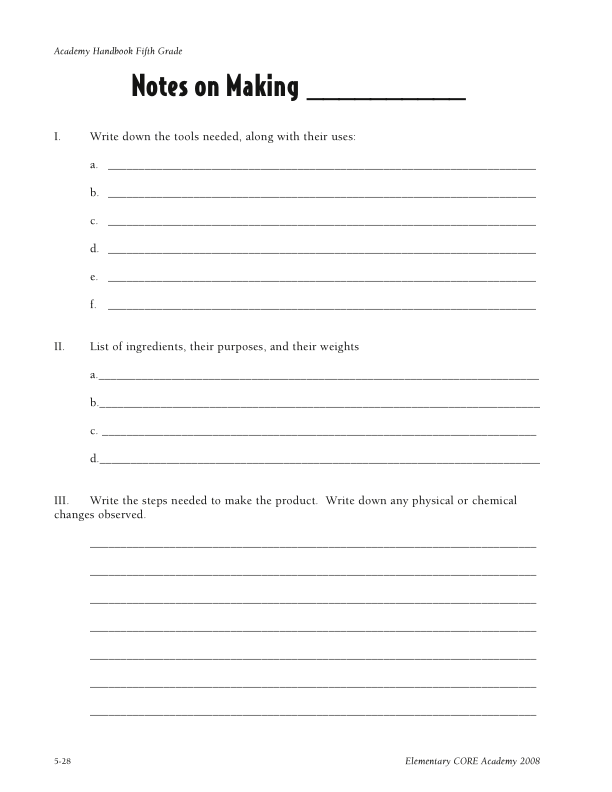
* Worksheet

**Differentiation:**

* ELL/LD: Vocabulary lists will be provided. Students may also have directions that are written down on paper instead of just being said orally.
* AIG: AIG students will have the option of doing another activity in place of the soap making activity.

**Resources:**

* Utah Education Network: <http://www.uen.org/Lessonplan/preview.cgi?LPid=21548>



IV. Uses of the product:

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V. Thoughts and discoveries while making the product

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VI. Chemical or Physical Change? Explain